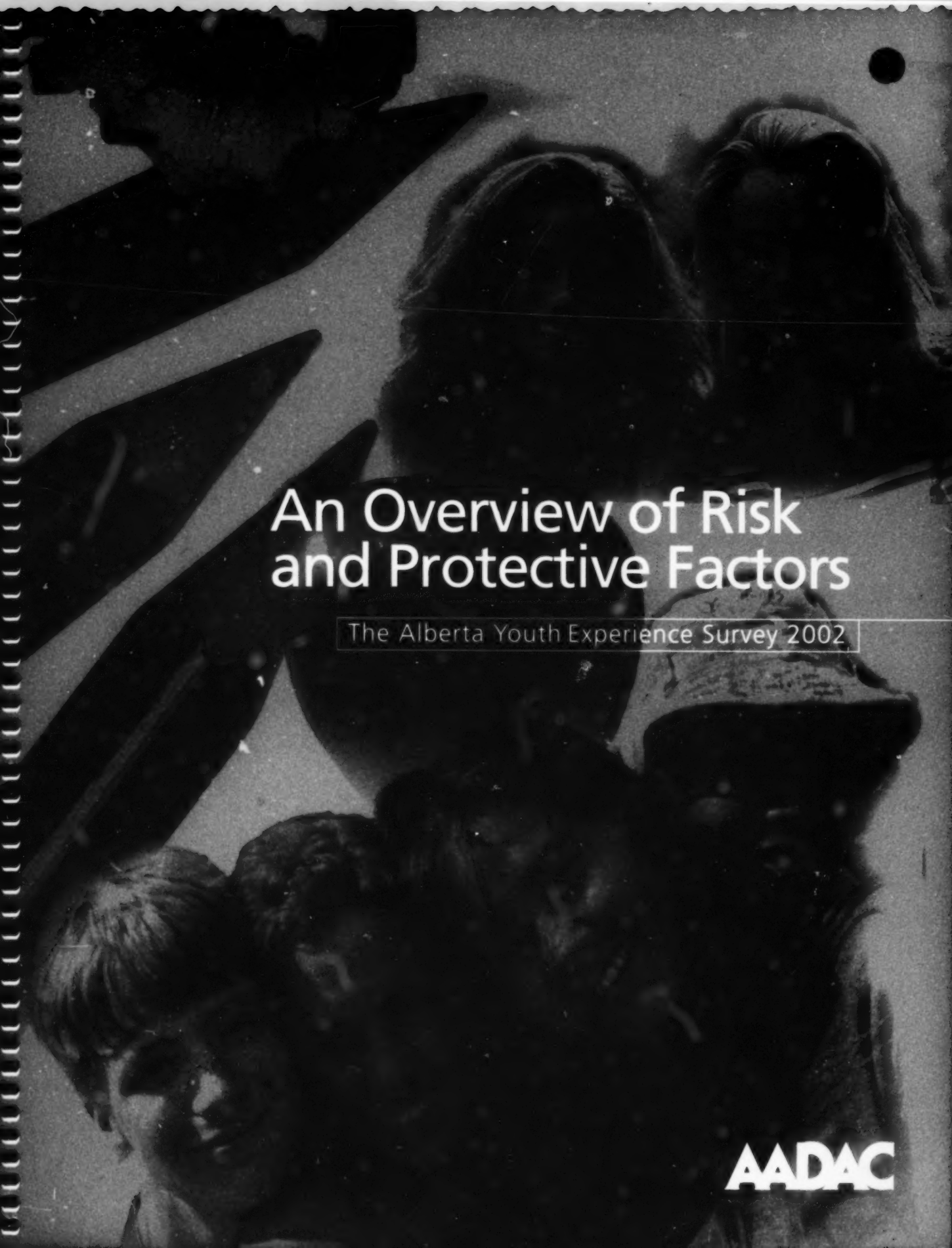

An Overview of Risk and Protective Factors

The Alberta Youth Experience Survey 2002

AADAC

103-05961/

TABLE OF CONTENTS

Executive Summary 3

Purpose of the Report 5

CHAPTER ONE
Alcohol, Tobacco, Other Drug and Gambling Use and Abuse Patterns 7

CHAPTER TWO
Risk Factors 7

CHAPTER THREE
Protective Factors 19

CHAPTER FOUR
Discussion and Conclusion 24

Bibliography 27

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EXECUTIVE SUMMARY

This overview report of risk and protective factors was produced in order to help allied professionals understand the findings from The Alberta Youth Experience Survey (TAYES).

The Risk and Protective Factors Framework

The risk and protective factors framework emerged in the 1990s, as a new and effective way for researchers and practitioners to organize research on factors that present risks for and protect adolescents from the harms associated with substance misuse and abuse. The framework is useful for describing the multitude of factors that interact to influence use and abuse of alcohol, tobacco, other drugs and gambling (ATODG). It also allows us to put research findings into perspective, showing adolescent behaviours within the context of the many influences in their lives. Those influences are commonly discussed in the literature under the domains of the individual, the family, school, peers, and neighbourhood.

The framework has helped researchers to refine their understanding of the causes and consequences of substance misuse and abuse. Practitioners find the framework valuable for organizing strategies to prevent substance misuse and abuse.

For these reasons, TAYES was designed using the risk and protective factors framework as a guiding and organizing principle. The framework is so widely used that for many this overview report will simply be a reminder, reinforcement and justification of the way that they already organize information about, and design programs aimed at, influencing adolescents toward healthy behaviour. However, it is important that we be reminded again that our practices in addictions work are based on current verified research.

Sources

For this report, information about risk and protection studies was collected from sources that include internal AADAC documents, Canadian and American government publications, academic journal articles, and reports from leading addiction agencies. The report relies substantially on best and promising practice reviews from the Center for Substance Abuse Prevention (CSAP) (1999; 2000; 2001), the Substance Abuse and Mental Health Services Administration (SAMHSA, 2001) and Canada's Drug Strategy Division, Health Canada (2001).

Domains and Factors of Risk and Protection

While much research remains to be done, key risk and protective factors have been identified in this report. The domains of influence commonly discussed in the literature are, again, the individual, the family, school, peer and neighbourhood contexts.

From the **individual** context, risk factors include brain-related traumas, basic personality development, age at which ATODG use/participation starts, orientations toward risk-taking and approaches to decision-making. Protective factors that offset these risks particularly emphasize social skills, bonding to non-delinquent peers and/or adults, and the development and maintenance of resilient characteristics.

Family life strongly influences adolescent well-being. Conflict in families, poor family management and poor parenting skills present significant risks for ATODG behaviours. Families who are protective are those who monitor adolescents' behaviours, including friendship choice and after school activities, and provide strong emotional support and high expectations about appropriate behaviour.

Peer influence is an important factor in creating risks for or developing protection from undesirable ATODG behaviours. Peers whose attitudes and behaviours support ATODG, and peers who engage in deviant behaviour, contribute to risky environments. Non-using peers and peers who have strong values about avoiding ATODG use create a more protective environment.

Low levels of commitment to **school** and early signs of academic failure are significant risk factors. Students with strong school spirit, those with strong school-based social networks and those in schools with high expectations are in a more protective environment.

Communities and **neighbourhoods** that are disorganized, are in transition, or have norms that are favourable to ATODG use, present risks to adolescents. Community-sponsored activities and participation in religious organizations foster protective environments.

Interactions Among Factors

The nature and extent of the interactions between risk and protective factors across social domains should be highlighted. For example, while dominance of the family context lessens as the adolescent ages, the most basic of attachments to other people are formed in early childhood, as are basic values and temperament. Parents' influence is felt even when adolescents begin to choose peers and develop social networks. Parents are a strong influence on children's academic performance and their expectations for future education. Parental expectations and parenting, peers and peer attitudes and high expectations from schools are quite consistent influences over the adolescent years.

Also, problem behaviours do not occur in isolation and tend to cluster together. Many of the risk and protective factors identified are also related to youth crime, teen pregnancy, early school leaving and violence. The implication is that programs aimed at reducing risk and increasing protective factors may well have positive results in a number of important areas.

Current and accurate information is required in order to make effective policy and programming decisions that affect the health of young Albertans and where resources need to be spent. An understanding of risk, protection and resiliency is essential to a complete picture. The risk and protective factors framework places importance on understanding the whole child- their mental, spiritual, physical and emotional well being by examining what is happening in their life contexts. Important questions arise: How do we build resilience and protection against unhealthy behaviours? Where could we put more effort? In order to answer these questions, up to date and ongoing information is needed. TAYES can provide some of this data, and the risk and protective factors framework will help guide the analysis and determine what steps need to be taken next.

PURPOSE OF THE REPORT

In 1999, AADAC Research redeveloped part of its ongoing review of research related to adolescent alcohol and drug use and abuse. In the five years before the turn of the century, the emergence of the "risk and protective factors" framework gave addictions researchers and practitioners a new way to organize research on factors that present risks for and protect adolescents from the harms associated with substance misuse and abuse. Researchers found the framework to be valuable for refining our understanding of the causes and consequences of substance misuse and abuse. Practitioners found the framework to be valuable for organizing strategies to prevent substance misuse and abuse.

For ease of explanation only, the phrase "ATODG behaviours" will be used to describe the breadth of alcohol, tobacco, other drug and gambling use, misuse and abuse. There are differences among these substances and behaviours. First, use, misuse and abuse differ; however, the literature to date shows that many factors that predict use among adolescents also predict misuse and abuse. Second, tobacco use has no known health benefits and is the only licit substance that, if used exactly as its manufacturers intend, compromises health and can lead to premature death. Third, gambling behaviour and related problems have not been studied to the same extent as alcohol- and drug-related problems; therefore, it is not as clear that the risk and protective factors identified are as applicable to gambling behaviour as they are to alcohol, tobacco and other drug use.

In planning The Alberta Youth Experience Survey, AADAC wanted to move from recording changes in ATODG behaviour that had already happened to recording indicators that could help anticipate the development of future health. The risk and protective factors framework helps select the "vital few" factors for measurement by identifying important risk and protective factors. The purpose of this report is to provide a broad overview of factors that influence adolescent ATODG behaviours.

The report will summarize findings on key risk and protective factors. References are provided for readers interested in more information. This paper will be used as background information for allied professionals and to help understand the results of the Alberta Youth Experience Survey within a risk and protective factors framework. At this stage of understanding, important factors include a small number of factors that appear to be causal, and many more factors that are known correlates.

The literature on substance abuse and associated problems among youth shows that substance use and other problems are

> "part of a consistent pattern of circumstances that tend to occur together. Community and neighbourhood environment, school conditions and performance, family environment and particularly, peer attitudes and behaviours all contribute to substance use. The literature also establishes that early behaviours are highly predictive of the development of problem behaviours as youth mature"
>
> (SAMHSA, 2002, p.9, www.health.org/govpubs/fo36/monograph2.asp).

These areas of influence, i.e. community, school, family, peers and individual, are referred to as "domains" within a "web of influence" (CSAP, 2001) through which risk and protective factors shape substance use.

Alcohol and drug use behaviours among adolescents (and, more recently, gambling behaviours) have been surveyed for nearly forty years. Some typical profiles of use have emerged. Chapter 1 provides an overview of important alcohol, tobacco, other drug and gambling use and abuse patterns that have been consistently found in North American Studies.

Chapters 3 and 4 present an overview of the research into understanding risk and protective factors and their influence on adolescents. The headings identify major factors. In order to

provide more than a list of factors, further information is provided under the headings.

Risk factors are defined as either life events or experiences that are statistically associated with an increase in problematic behaviours such as alcohol and other drug use, and problem gambling (Hawkins, Catalano & Miller, 1992). Longitudinal studies have identified risk factors for substance abuse within individuals, in the environments within which they develop-including families, schools, peers groups and the broader community, and in the interactions of individuals and their environments. The greater the number of risk factors to which a person is exposed during development, the greater that person's risk for drug abuse.

Protective factors are defined as life events or experiences that mediate or moderate the effect of exposure to risk factors. The result is the reduced incidence of the problem behaviour (Garmezy, 1985; Rutter, 1979, as cited in Pollard & Hawkins, 1999).

Chapter 4 briefly concludes this report and presents some of the main implications for prevention and treatment programming.

Information about risk and protection studies was collected from a variety of sources, including internal AADAC documents, Canadian and American government publications, academic journal articles, and reports from leading addiction agencies. The report relies substantially on best and promising practice reviews from the Center for Substance Abuse Prevention (CSAP) (1999; 2000; 2001), the Substance Abuse and Mental Health Services Administration (SAMHSA, 2001) and Canada's Drug Strategy Division, Health Canada (2001).

CHAPTER ONE ALCOHOL, TOBACCO, OTHER DRUG AND GAMBLING USE AND ABUSE PATTERNS

Thousands of studies of adolescent alcohol, tobacco and other drug use have been done around the world and there are an increasing number of studies of adolescent gambling. For alcohol, tobacco and other drugs, a number of key patterns of use and abuse have emerged. Adolescent gambling behaviour is less thoroughly researched, but seems to be similar with respect to major patterns. Three constant findings from prevalence studies are presented in this chapter: age and gender make a difference in ATODG-related behaviour, use and abuse are not the same and use is generally infrequent. However, the degree of consistency in the findings of prevalence can be over-interpreted. Selected findings from longitudinal studies of substance use and abuse are presented so that the reader has an appreciation of the dynamic changes behind prevalence figures. A few examples of alcohol, tobacco and other drug information are presented in this chapter.

Figure 1 shows a chart of the prevalence use of selected drugs, taken from the 1977 - 2001 Ontario Student Drug Use Survey (Adlaf and Paglia, 2001). The chart highlights the general relationship between drug use and grade. In general, the percentage of students who have used drugs increases as grade increases. Solvent use is a persistent exception in North American studies - use declines as grade increases.

Figure 1:
Prevalence of Annual Substance Use (used one or more times in the past year) by Grade

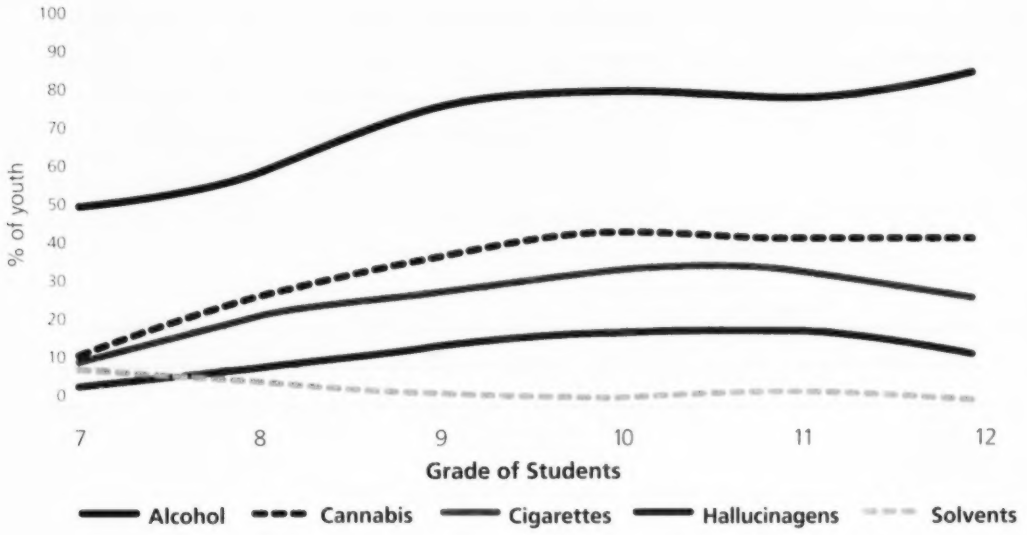
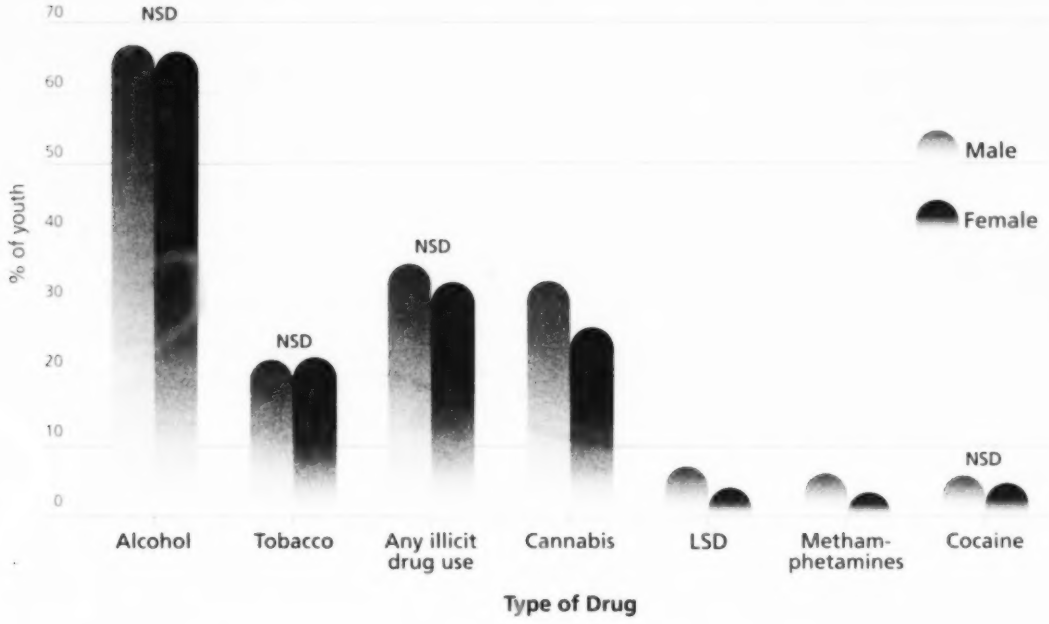


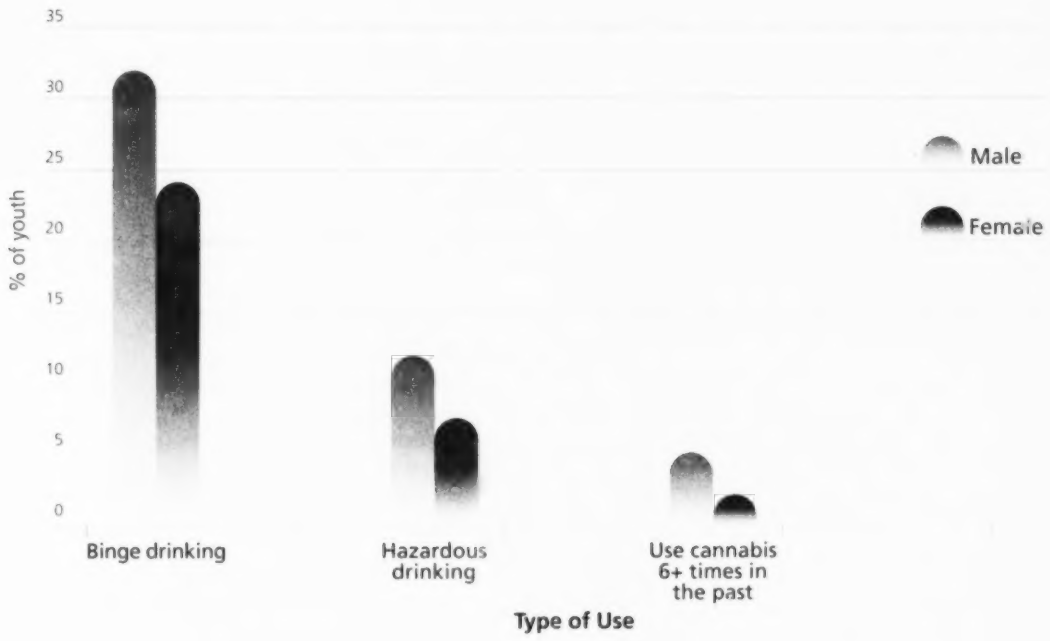
Figure 2 shows gender differences in prevalence of use of selected drugs with results taken from the 1977 - 2001 Ontario Student Drug Use Survey (Adlaf and Paglia, 2001; "NSD" on the chart is short for "no significant difference" and means that the difference between male and female students is not large enough to matter). In general, male and female students are about as likely to have used alcohol and tobacco at least once in the past year. There are few drugs reported in the literature that females are more likely to use than males.

Figure 2:
Gender Differences in the Use of Selected Drugs



Use and harmful use are not the same. Figure 3 shows gender-related patterns of heavy and hazardous use of alcohol and cannabis to illustrate the differences in consumption that are not shown by Figure 2 (data are also drawn from 1977 - 2001 Ontario Student Drug Use Survey, Adlaf and Paglia, 2001). Note, as well, that the rates for binge drinking, hazardous drinking and frequent cannabis use are substantially lower than the prevalence rates shown in Figure 2. As a rule, boys are more likely than girls to drink in a binge fashion (defined as drinking five or more drinks on the same drinking occasion during the past four weeks), drink in a way that is hazardous to health (as defined by the Alcohol Use Disorders Identification Test or AUDIT; and to be more frequent cannabis users.

FIGURE 3:
Prevalence of Heavy and Hazardous Use by Gender

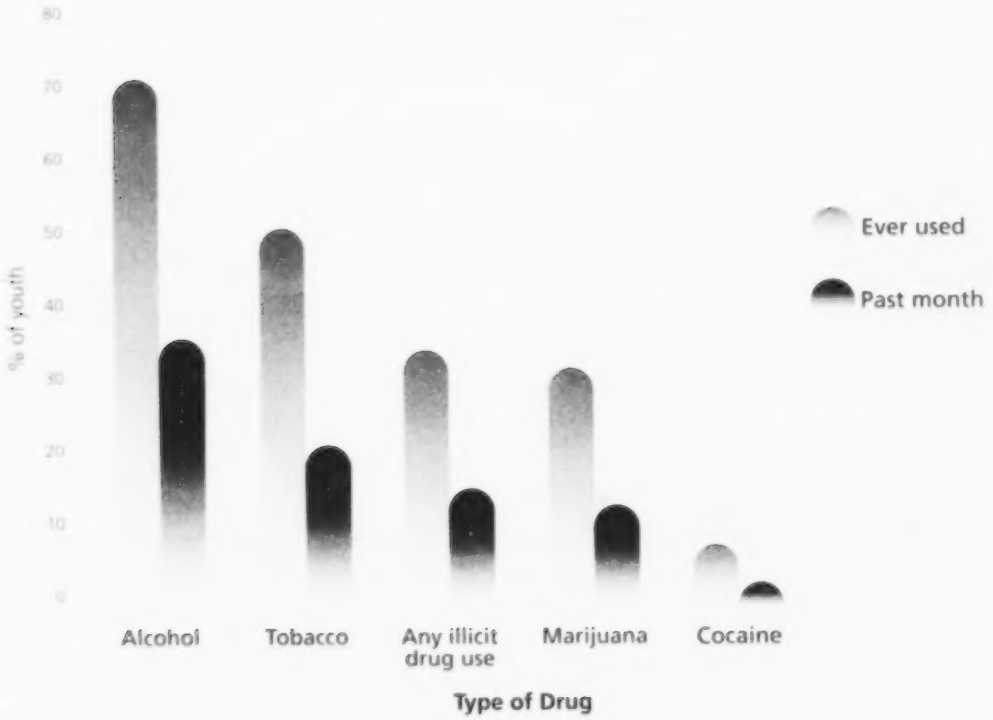


ATODG behaviour changes over time and is somewhat inconsistent. An adolescent who tries smoking once during a year may continue or quit. Prevalence surveys do not follow teens over time and cannot capture an individual's history of ATODG use. However, by comparing longer and shorter periods, some idea of the dynamic changes in use can be described. Figure 4 presents information from the "Texas School Survey of Substance Use Among Students: Grades 7 to12, 2000" conducted by the Texas Commission on Alcohol and Drug Abuse (Liu and Maxwell, 2000) comparing lifetime and past month use of a variety of drugs. The Alberta Youth Experience Survey does not ask questions about lifetime use of drugs but contains similar information.

In general, there are about half as many adolescents who have used the drugs identified in the past month as who have used them in their lifetimes.

Adolescents are more exposed to alcohol and drug use and to related problems as they age. In general, males are somewhat more likely to use illicit drugs and to develop problems than are females, although these differences are smaller among adolescents than among adults. Finally, studies find that much adolescent drug and alcohol use is infrequent. This finding reflects two facts: first, that many young people experiment only a few times with substances and second, that patterns of use change as youth pass through their adolescent years.

FIGURE 4:
Lifetime and Past Month Use of Selected Drugs, Texas Grade 7-12 Students



CHAPTER TWO RISK FACTORS

ATODG behaviour is complex and can develop in response to a wide range of influences. These influences are typically divided into "domains," or spheres of influence, and typically include the individual, family, peers, school, community and broader society. Within each domain, a range of factors is important.

Those factors closest to the individual exert more influence than more distant ones; for example, peer influences can be stronger than the influence of parents. However, close factors are influenced by more distant factors (e.g., parents can have a strong influence over the choice of peers, CSAP, 2001). Factors from one domain often interact with factors from other domains. Risk and protective factors are found in all domains.

The risk factor approach uses a cumulative concept that states, "the greater the number of risk factors in relation to the number of protective factors, the greater the likelihood that problem behaviour will emerge" (DeWit et al.,1995). Newcomb (1992) states that it is the cumulative and collective influence of multiple conditions of risk, rather than the predictive dominance of any one risk factor, that determines vulnerability. The most important component of the risk factor approach is the degree of exposure to a number of risk factors, against a number of protective factors, in predicting drug abuse behaviour. Some factors may be more powerful than others in their influence on drug behaviour. In other words, one risk factor which may contribute to alcohol or drug abuse cannot be seen in isolation from other factors that may also be contributing to the problem and that some factors may be exert more influence than others. In the same way, protective factors must be seen as interrelated with some factors having more effect than others. There is evidence that the effects of exposure to risk can be mitigated by a variety of individual and environmental characteristics and by interaction between individuals and their environment (Werner, 1989). Protective factors may directly decrease dysfunction; they may interact with a risk factor to reduce dysfunction; they may mediate the relationship through which risk factors may cause dysfunction; or they may prevent the initial occurrence of a risk factor (Coei et al., 1993).

Younger children tend to have more protective orientations or attitudes, stronger family autonomy, stronger commitment to school, stronger perceptions of self-efficacy and self-control. However, between the ages of 11 and 16, these orientations shift toward greater risk, indicating a reduction in the internal protective orientations during junior and senior high school (SAMHSA, 2002). Another high-risk time is in late adolescence, particularly the transition year from high school to college or work. Data from national surveys suggest that this risk period is characterized by a sharp increase in tobacco and drug use for those adolescents who had not previously experimented with them, often progressing to abuse or binge drinking (Johnston, O'Malley & Bachman, 1992). Individual and family factors are the earliest consistent predictors of adolescent substance misuse. School factors become significant predictors of later drug use. When peers use drugs, both the prevalence and predictive power of drug use in adolescence increases.

Causality has not yet been established for all the risk and protective factors identified in this paper. However, all of the identified factors should be considered targets for prevention (Hawkins et al.,1992; Institute of Medicine, 1994). In understanding the effect of risk factors, it is important to note that the literature shows males are significantly more likely than females to use illicit drugs on a frequent basis (DeWit et al.,1995) and are at a higher risk for substance abuse in later adolescence (Johnson, O'Malley & Bachman, 1991).

Risk factors are presented in the following sections starting with the individual/personality domain, followed by the family domain, peer domain, school domain, and lastly the community/environmental domain.

Individual/Personality Domain

The individual/personality domain includes risk factors in daily life in psychological and some biological areas (particularly as they affect the brain). The range of influences spans an area that includes brain development and functioning, basic personality development, orientations toward taking risks and decision-making skills.

Physical trauma

- Perinatal complications (including preterm delivery, low birth weight and anoxia), brain damage (i.e., from infectious disease, traumatic head injury or pre-post natal exposure to toxins such as heavy metals, alcohol, tobacco or cocaine) predispose children to later aggressive behaviour and substance use (Brennan, Mednick, & Kandel, 1991; Michaud, Rivara, Jaffe, Fay & Dailey, 1993).

Temperament

- Qualities such as a strong need for independence (Hawkins et al.,1992), sensation and novelty seeking, and poor impulse control were found to be predictors of early drug initiation and abuse (Weinberg et al., 1999; Cloninger, Sigvardsson, & Bohman, 1988).

Early aggressive behaviour

- Early aggressiveness and irritability is associated with later substance abuse (Lewis, Robins & Rice, 1985; Nylander, 1979).
- Aggression and acting out measured at ages 5 and 10 significantly increased the odds of adolescent alcohol abuse versus moderate alcohol use at ages 16 to 21. Childhood aggression may also result in parental rejection of the child, thus affecting parent-child attachment (Brook, Balka, Brook, Win, & Gursen, 1998). It may also result in the exclusion of the child from positive peer groups and acceptance by peers with similar behaviours. Both Jessor (1976) and Kandel (1982) report that this lack of bonding with parents and conventional peer groups was strongly associated with drug use. Conduct disorder in younger children that may manifest itself in non-conformity, rebelliousness and tolerance of deviant behaviour is also strongly associated with substance abuse at a later age (Weinberg et al., 1999).
- Bukstein, Glancy, and Kaminer (1992) found conduct disorder to be the most common antecedent for substance abuse among boys.
- Guo, Hawkins, Hill & Abbott (2001) found that as early as 10 years, delinquency predicted a higher probability of alcohol dependence at age 21. They also reported that both junior and senior high school students who misbehaved in school, used alcohol in the last month, had been sexually active and had been charged with juvenile offences in court were significantly more at risk for alcohol abuse and dependence at age 21.

Early initiation of substance use

- Consistent research evidence has shown that an early onset of substance use is an important predictor of later problems such as abuse and dependence during adolescence and adulthood (Hawkins et al., 1995; Kandel & Yamaguchi, 1993; Hawkins, Catalano & Miller, 1992; Kandel, Simcha-Fagen & Davies, 1986; Robins & Przybeck, 1985; Anthony & Petronis, 1995; Hawkins et al., 1997).
- Early initiation of alcohol, tobacco or marijuana by the sixth grade is a strong predictor, by the ninth grade, of lifetime substance use (Martin, 1998).

- Early initiation of use of alcohol and tobacco is related to initiation of use of other illicit substances (Yamaguchi & Kandel, 1984).
- Adults who began drinking prior to age 14 were four times more likely to abuse alcohol, as were adults who started drinking after age 20. The odds of dependence decreased 14% for every year that the onset of drinking was delayed and the odds of alcohol abuse decreased 9% for each year of delay (Grant & Dawson, 1997).
- Hawkins, Arthur & Catalano (1995) found that among high school seniors, white students reported nearly double the rate of heavy drinking as black students. Hispanic students were found to be intermediate compared to black and white students in the United States (Robins, 1992).
- Alcohol abuse and dependence develop over time. A study by Guo, Collins, Gill and Hawkins (2000) supports the hierarchical model of the development of alcoholism developed by Zucker (Zucker, Kincaid, Fitzgerald & Bingham, 1995). The model indicates that drinking in middle school and heavy episodic drinking in high school influence the development of alcohol abuse and dependence.
- Guo et al., (2000) conclude that preventing drinking during middle school could reduce risk for later alcohol abuse and dependence. They also recommend that a major focus of prevention efforts should be to reduce heavy episodic drinking in high school.
- Parenting behaviours, and peer influences can serve as preventive interventions as well. Hawkins et al. (1995) report parents' drinking, proactive parenting, peer influences and perceptions of the harm of drinking affect the age of alcohol initiation. These in turn affect alcohol misuse in late adolescence.

Past trauma or abuse

- It is very difficult to determine the risk of substance abuse with early trauma or abuse. However, Hawke, Jainchill & DeLeon (2000) state that among individuals entering drug treatment programs, those who have suffered early trauma or abuse typically exhibit more severe drug use problems and a higher rate of psychopathology than other clients do.
- Kilpatrick (2000) suggests that individuals who are victims of abuse use drugs as a coping strategy to reduce the negative effects of the abuse, thus creating the further problems of drug abuse. He found that those who experienced either physical or sexual abuse were at increased risk of substance abuse. He also reported that witnessing violence was one of the most powerful risk factors for substance abuse behaviour.

A lack of commitment to societal values or norms

- Alienation from the dominant values of society (Jessor & Jessor, 1977; Penning & Barnes, 1982; Shelder & Block, 1990) and low religiosity (Kandel, 1982; Resnick et al., 1997) have been shown to predict greater drug use in adolescence.

Poor self-concept

- Social skills and personal competence are key ingredients to self-concept and both are required for successful transition to adulthood. The absence of these social skills and personal competence may contribute to dysfunctional behaviour (Newcomb, 1987).
- Newcomb (1987) states that early onset of drinking may compromise the development of social skills. Also, some adolescents who drop out of school and related extra-curricular activities because of a delinquent lifestyle limit their opportunities to learn these skills.

- In their study, Scheier and Botvin (1998) report that youth often use alcohol in association with, or following, lack of competence (e.g., poor decision making skills and low academic performance).

Research has shown that adolescent gamblers have

- lower self-esteem (Gupta & Derevensky, 1996),
- higher rates of depression (Gupta & Derevensky, 1998a, 1998b; Nower, Gupta & Derevensky, 2000),
- higher anxiety (Gupta & Derevensky, 1998; Vitaro, Ferland, Jacques & Ladoucier, 1998) and
- heightened risk for suicide ideation and attempts (Gupta & Derevensky, 1998).

Adolescent gamblers are greater risk-takers and are at an increased risk for development of an addiction or for polyaddictions (Gupta & Derevensky, 1998; Leisieur & Klein, 1987; Winters & Anderson, 2000).

Family Domain

Family life provides a range of factors related to risk for ATODG behaviours. The strength of family relationships, involvement and attachment between adult caretakers and children significantly affects levels of risk. According to Kandel (1982), three parental factors help to predict initiation into drug use: parent-child interactions, parental attitudes about drugs and use of drugs by parents. Other influences within the family domain include family structure, stability, and sibling relationships.

Poor attachment

- Poor attachment to parents has been found to be a strong risk factor for substance use (Svensson, 2000).
- Weak attachment to parents makes it easier for youth to give in to peer pressure (Rankin & Kern, 1994).
- In her study of risk factors affecting youth in downtown east Vancouver, Toledano (2002) indicated that the most frequently reported cause for addiction cited by the youth was using drugs to deal with emotional pain or to escape reality. Toledano notes that youth not only experienced damaged attachment with their parents that affected their self-regulation, but also (and most likely related to the broken attachment) suffered from lack of guidance and support from parents that could have assisted them in turning away from drugs.

Poor parent supervision and monitoring

- Poor supervision during preadolescence has been shown to have a long-term effect on both antisocial behaviour and drug use during adolescence (Chilcoat & Anthony, 1996; Haapsalo et al.,1994).
- Parental monitoring includes knowledge of where the child is, the child's activities, and the child's friends. Poor supervision during preadolescence has been shown to have a long-term effect on both antisocial behaviour and drug use during adolescence (Chilcoat & Anthony, 1996; Haapsalo et al., 1994).
- Poor monitoring is also associated with early initiation of use of alcohol, tobacco and other drugs. (Chilcoat, Dishion, & Anthony, 1995; Chilcoat et al., 1996).
- In this regard, Svensson (2000) reported that a lack of parental monitoring plays an important role in predicting drug use behaviour. The effect of poor monitoring is strongest at the time of transition into substance use rather than at the stage of experimentation to regular use (Steinberg et al., 1994).

- A University of Illinois study showed that junior high youth who were left unsupervised after school were four times more likely to have gotten drunk in the past month and three to five times more likely to use cigarettes, marijuana and inhalants (Mulhall, Stone & Stone, 1996).
- A study of nearly 4,000 students in Southern California found that among eighth grade students, being unsupervised after school was associated with lower academic grades and greater probability of substance use, risk-taking, and depressed mood. Family structure and socioeconomic status did not have an impact on risk, but levels of parental engagement did (Richardson, Radziszewska, Dent & Flay, 1993).

Discipline and expectations

- Poor parental discipline either in the form of authoritarian parenting or too permissive parenting are significant predictors of drug use (Hawkins et al., 1992; Brook et al., 1992; Svensson, 2000).
- Kandel et al. (1987) reported that low parental educational expectation of children is also a predictor of adolescent drug use.
- Crum et al. (1998) identified family rules and expectations about schoolwork and how often the adolescent worked on homework with his family as a predictor of alcohol abuse.

Family conflict

- Families with high levels of conflict have poorer monitoring of adolescent behaviour (Ary, Duncan & Biglan, 1999).
- Researchers have shown that family aggression and family tension are strong underlying factors that may lead to adolescent drug abuse (Hawkins, Arthur & Catalano, 1995).
- Needle, Su and Doherty (1990) and Penning and Barnes (1982) found that children who experienced divorce during their adolescence were more likely to use drugs than other adolescents.

Tolerant parental attitudes toward teen alcohol, other drug use and gambling

- Parental attitudes and adolescent attitudes are strongly associated (Barnes & Welte, 1986).
- Permissive attitudes toward drug and alcohol use were found to be an even greater factor in adolescent drug use than parental use itself (Brook, Gordon, Whiteman & Cohen, 1986; McDermott, 1984).

Parental alcoholism and drug use

- Although parental attitudes toward drug use is a primary risk factor, drug use by parents is a significant risk factor (Svensson, 2000; De Wit et al., 1995; Merikangas, Rounsaville & Prusoff, 1992; Tarter, 1988).
- In her Vancouver study, Toledano (2002) notes that 77.4% of the participants said their parents' substance abuse was used as a coping mechanism by their parents.
- Hawkins et al. (1995) state that children of drinking parents were less likely to see drinking as harmful and more likely to start drinking earlier. Both these attitudes and behaviours, in turn, predicted greater alcohol misuse at age 17-18.
- Children of drinking parents may feel less inhibited from forming friendships with peers who have tried alcohol at age 10 to 11 (Hansen,Graham, Sobel, Shelton, Flay & Johnson, 1987).
- Favourable sibling attitudes toward teen use of alcohol, other drugs and gambling also pose a risk factor for youth. (Vakalahi, 2001).

Living arrangements

- Nurco and Lerner (1996) defined living arrangement as an "intact home" versus a "non-intact home." An intact home is when both natural parents live in the same household. A non-intact home is one in which one of the natural parents is absent, usually the father. Three types of non-intact homes were described: (a) a natural mother living with a male partner, (b) a natural mother functioning as a single parent, and (c) other persons such as grandparents, siblings and other persons serving as caregivers, or the natural father with a female partner. Nurco and Lerner (1996) and Harbach and Jones (1995) found that adolescents residing in a non-intact home were more at risk for substance abuse than adolescents in intact homes, especially in households with the natural mother and surrogate father, followed by households with single parents (mothers) and then households with other caregivers.

Peer Domain

Research has established that peer attitude and peer behaviour are two of the strongest correlates of substance use (Oetting & Beauvais, 1987). Peer influence becomes increasingly more important during late childhood and early adolescence. As well, peer attitudes, perceptions of peer substance use and perceptions of peer norms are stronger predictors of substance use behaviour for those 12 years and older. During their midteens, peers and peer group identity become more important than family (Catalano & Hawkins, 1996).

Favourable peer attitudes towards drugs and gambling

- Adolescents' perceptions of normative use of drugs and alcohol by their peers is significant in their choosing to use these substances (Brook, Cohen, Whiteman & Gordon, 1992; Kandel & Andrews, 1987).
- Guo et al. (2001) reported that intention to use alcohol and favourable attitudes toward the use of alcohol among children as early as 10 years predicted alcohol abuse and dependence at age 21.
- The results of another study by Sieving, Perry and Williams (1998) also concludes that similarity in drinking behaviours among adolescent friends is derived more from peer influence than from peer selection in which the youth would seek out individuals who favour drinking.

Peer substance use

- The association between peer use and personal use is the strongest of all the risk and protective factors (Brook, Brook, Gordon, Whiteman & Cohen, 1990).
- Most substance use by adolescents takes place within a peer social environment. Children with alcohol-using peers at age 10 to 11 are more likely to initiate alcohol use at an early age and to misuse it in adolescence (Hawkins et al., 1995).

Peer pressure/peer rejection

- Toledano (2002) reported that the youth in her study would lose their "social status" and acceptance by peers if they did not use drugs.
- Guo et al. (2001) found that having frequent contact with antisocial friends, frequent alcohol use among best friends and high level of bonding to the antisocial friends at ages 10, 14 and 16 predicted higher probabilities of alcohol abuse and dependence at age 21.

School Domain

The transition from junior high to senior high has been shown to be a time in the adolescent's life when there is a high risk of substance use (Downs & Rose, 1991; Jessor, 1982; Pentz, 1985). School marks and school goals become important predictors in ATODG behaviours. Adolescents are forming new friendship groups and are expected to assume adult-like responsibilities and behaviour, at least within the context of the school. Feeling new pressures, they will attempt to emulate older peer behaviour and drug use is often one of these behaviours.

Academic failure

- Poor school performance (Jessor & Jessor, 1978; Kandel et al., 1978; Jessor, 1976) and failure in school are considered to be antecedents for adolescent drug abuse.
- In reviewing the research, Hawkins et al.(1985) conclude that academic performance appears to emerge in importance as a predictor during the later elementary school years.
- School dropouts are a high-risk population particularly vulnerable to alcohol and other substance abuse (Mensch & Kandel, 1988) and poor academic achievement is the strongest predictor of school dropout before completing Grade 10 (Abbot, Hill, Catalano & Hawkins, 2000).
- It must be noted, however, that general deviance, bonding to anti-social peers, and coming from a family in poverty increase the risk for leaving school early even when children have not experienced academic difficulties or failure (Abbot et al., 2000).

Lack of commitment to school

- Students who are not committed to educational pursuits are more likely to engage in drug use and delinquent behaviour (Hirschi, 1969; Elliot & Voss, 1974; Kim, 1979; Schnirer, 1996).

Community/Environmental Domain

The community domain includes risks such as community/neighbourhood disorganization, availability of substances, and community norms and laws that favour drug use and gambling.

Characteristics of the community and neighbourhood

- High levels of community disorganization, high rates of transition and mobility, poverty, and patterns of substance use (Robins, 1984) affect the rates of drug use among youth.
- There is evidence that children who grow up in disorganized neighbourhoods with high population density, high mobility, poor housing, and low levels of neighbourhood cohesion face greater risk for a range of health and behaviour problems including drug abuse (Fagen, 1988; Simcha-Fagen & Schwartz, 1986).
- Poverty places children at risk for school failure (Goodlad, 1984), for dropping out of school (Wittenberg, 1988) for serious delinquency and crime (Blumstein, Cohen, Roth & Visher, 1986) and for alcoholism and other drug problems (Robins & Ratcliff, 1979).
- The report produced by CSAP on The National Cross-Site Evaluation of High-Risk Youth Programs (SAMHSA, 2002 available on-line at www.health.org/govpubs/fo36/monograph2.asp) provides data that suggest that conditions in the neighbourhood have a greater influence on substance use in males than in females.

Availability of substances

- Availability of drugs refers to the existence of drugs within the adolescent's environment, the affordability of the drugs and the social context in which the drugs are used, all of which affect the rates of drug use among youth (Gottfredson, 1988; Maddahian).

Community laws/norms favourable to drug use and gambling

- Broad social norms regarding the acceptability and risk of use of alcohol or other drugs appear to affect the prevalence of substance use and misuse (Robins, 1984).
- Guo et al. (2001) reported that 16 year-old youths living in neighbourhoods with high availability of marijuana and trouble-making youth were associated with higher risks of alcohol abuse and dependence at age 21.

Risk factors that affect a range of problem behaviours

- Catalano et al (1992) have identified risk factors correlated with substance abuse, delinquency, teen pregnancy, school dropout and school violence. For brevity, only correlates with all of these problem behaviours are listed. The list includes: family history of the problem behaviour, family management problems, family conflict, early and persistent antisocial behaviour, academic failure beginning in late elementary school, lack of commitment to school, friends who engage in the problem behaviour and early initiation into the problem behaviour.

Summary

One of the main benefits of the risk and protective factors framework is that it organizes a vast amount of research into an easily accessible format. While much research remains to be done, key risk factors have been identified in this chapter. Chapter three will describe key protective factors. Though the list is not exhaustive, key risk factors are listed below:

Individual Domain

- physical trauma
- temperament
- early aggressive behaviour
- early initiation of substance use
- past trauma or abuse
- lack of commitment to societal values or norms
- poor self-concept

Family Domain

- living arrangements
- poor parental monitoring
- poor parental supervision
- poor attachments
- poor communication about rules and expectations
- family conflict
- favourable attitudes toward teen alcohol, other drug use and gambling
- parental alcoholism and drug use

Peer Domain

- favourable peer attitudes towards drugs and gambling
- peer substance use
- peer pressure/rejection

School Domain

- academic failure
- lack of commitment to school

Community Domain

- characteristics of the community (e.g., high population density, community disorganization and high rates of transition and mobility)
- availability of substances
- community laws/norms favourable to drug use and gambling

CHAPTER THREE PROTECTIVE FACTORS

Researchers have argued that protective factors are not simply a mirror image of risk factors (Newcomb & Felix-Ortiz, 1992). However, the distinction is not clearly delineated, as the literature on protective factors is more diffuse than for risk factors. What is clear, however, is that "protective factors represent the influences, orientations and behaviours in youth's lives that contribute to positive development and help prevent negative behaviours and outcomes such as substance use" (SAMHSA, 2002 p.10, www.health.org/govpubs/fo36/monograph2.asp). In other words, protection for youth requires a connection between a positive and meaningful social environment and their own positive personal development.

Protective factors are presented in the following sections starting with the individual/personality domain, family domain, peer domain, school domain, and lastly the community/environmental domain.

Individual/Personality Domain

As with risk factors, the individual/personality domain includes protective factors in daily life in psychological and biological areas, although there is little research in biological protective factors. Resilience is a key protective factor.

Strong personal social skills/self-esteem

- Adolescents with strong social skills and competencies are more resistant to substance use (Botvin et al., 1995).
- Guo et al. (2001) found that at age 14 and age 16, well-developed refusal skills and strong belief in traditional norms predicted significantly less risk of alcohol abuse and dependence at age 21.

Resiliency

- Resilience has been defined by Wolin and Wolin (1995) as, "...successful adaptation despite risk and adversity" (p. 419). The key feature of resiliency is the ability to cope. Some of this ability is innate but it can be strengthened through appropriate social support.
- Resiliency is the result of the strengths and capacities among the protective factors that exist within individuals and their environments counteracting the impact of risk factors. Research suggests that resilience is a product of being connected to people, interests and the community (Centre for Addiction & Mental Health [CAMH], 1999).
- Youth who are resilient have the capabilities to deal with stressful situations and are able to maintain self-esteem in the midst of the turmoil of a troubled family or environment. Resilient youth demonstrate insight, independence, relationships, initiative, creativity, humour and morality (Wolin & Wolin, 1993).

Family Domain

Research has shown that a close mutual parent/child relationship protects the adolescent from drug use (Brook et al., 2000). These positive relationships can assist the adolescent in coping with interpersonal problems without rebelling. When parents are supportive, their children can control their emotions and have the ability to problem-solve (Eisenberg & Fabes, 1992 as cited in Brook et al., 2000). When adolescents feel supported by their parents, they accept conventional social values and attitudes that protect them from engaging in drug use. Positive parent/child attachments result in fewer delinquent behaviours because the child does not want to jeopardize the established relationship (Rankin and Kern, 1994). Weak attachments minimize the child's sensitivity to parental opinions, thereby freeing the child to deviate in response to situational demands and peer encouragement.

During their midteen years, many adolescents have less strong feelings that the family is a

place for meaning, communication, contribution or recreation. That is why family attitudes and family supervision is of even greater importance with youth 12 years and older than with preteens. Even though adolescents may not be involved with antisocial peers in elementary school, family management practice will influence peer selection in junior and senior high school and have a strong impact on substance initiation (Catalano et al., 1996).

Parental monitoring and supervision

- Parental monitoring may include knowledge of a child's whereabouts, what the child does in his/her spare time, and the friends the child is "hanging out with" (Martens, 1993).
- Parental monitoring and supervision have a significant impact on child-peer association, decreasing involvement with antisocial peers. Appropriate monitoring and supervision can provide a foundation for reducing the later risks of peer influences and pressure (Svensson, 2000).
- Guo et al. (2001) found that that elementary and high school youth who reported good parental monitoring and clear family rules had a significantly lower probability of alcohol abuse and dependence at age 21.

Emotional support

- Emotional support and perceived quality of parental relationship (warmth and affection) protect children from negative environmental influences (Resnick, et al., 1997); Brook et al., 1992; Brook et al., 1998).
- Kandel, Kessler & Margulies (1978) reported that parent-adolescent closeness was the primary influence on the use of hard drugs.
- Vicar, Snyder and Kimberly (2000) in their study using Grade 7 rural children found that the role of parents is of particular importance at this age, especially for boys who reported earlier initiation and higher levels of alcohol use. The results of their study also pointed out that coping with anxiety was another factor associated with an increase in alcohol use and that parents should be addressing this with their children even before junior high begins.

Clear normative expectations

- Nurco et al. (1996) indicated that strong attachment to parents may encourage the internalization of positive parental values.
- Webster, Hunter and Keats (1994) noted that adolescents' internalization of perceived normative standards and preferences is a protective factor against substance abuse.
- In their study, Oxford, Harachi, Catalano and Abbott (2000) examined the impact of both family factors and peer factors on substance initiation at ages 11 and 12. They found that family pro-social processes (family rules, parental monitoring and parental attachment) effect both substance initiation and friendship choice. As well, association with antisocial peers effects substance initiation.
- Hawkins et al. (1992) found that children were less likely to initiate alcohol use early and were less likely to misuse alcohol at age 17 to 18 if parents
  - communicated with their children,
  - were involved with them at age 10 to 11,
  - set clear expectations for their behaviour,
  - practiced good supervision and consistent discipline,
  - minimized conflict in the family and
  - saw alcohol use by their children as harmful at age 10 to 12.

Peer Domain

While much research has focused on peers as a risk factor, peer relations are also protective.

Close friends who are not drug users

- Kandel et al. (1978) stated that peer relationships were the second strongest influence on the use of hard drugs among adolescents.
- Other researchers also report that peers are a prime influence on drug use behaviour (Dinges et al., 1993). Youth whose peers do not use substances tend not to use substances themselves. Youth whose peers disapprove of substance use also report less use of substances.

School Domain

The transition years between elementary and junior high and between junior high and senior high involve the youth in redefining their roles and behavioural expectations. They determine their position among new peers and peer groups, reorganize social support resources and manage their stress about uncertain academic expectations. Being aware of these high-risk times for youth, teachers and counsellors can explore many approaches for enhancing resiliency and heightening protective factors.

Participation in extra-curricular activities

- A review of the literature on school and non-school activities identifies a number of possible outcomes from participation which include enhanced self-esteem, more involvement in political and social activities in young adulthood, higher grades and aspirations to attend college, and lower delinquency (Holland & Andre, 1987). These characteristics have been found to be negatively associated with substance use; for example, increased self-esteem is associated with a decrease in substance use (Oetting & Donnermeyer, 1998; Hawkins et al., 1992). Some of these positive results are gender specific, however. There is a significant positive relationship in activities and self-esteem for boys, but none for girls. Athletic participation positively influenced academic achievement for boys, but not similarly for girls (Holland et.al, 1987).
- Guo, Hawkins, Hill and Abbott (2001) found that childhood and adolescent bonding (commitment and attachment) to school consistently protects against later alcohol use and dependence. They found that a higher level of bonding to school significantly predicted lower risk for alcohol abuse and dependence at age 21.
- Borden, Donnermeyer and Scheer (2001) conclude that youth program providers should view extra-curricular activities as providing a positive context for the reduction of substance use. These activities should be viewed as an indication of a larger low-risk lifestyle rather than as a direct panacea for substance use, as their contribution is not significant without other influences. They noted participation is important as a form of reinforcement to conventional bonds that promote healthy lifestyles.

High social and academic expectations

- In a school, it is critical to set, and communicate, high expectations for student abilities as this relates to high rates of social and academic achievement (Lewis, 1999; South West Regional Center [SWRC] 1994).
- School success enhances the association that school connectedness has with non-using peers and reduced substance use (SAMHSA, 2002, available on-line at www.health.org/govpubs/fo36/monograph2.asp).

Social support networks

- Relationships between students and adults at school are enhanced by providing a caring and supportive system, accepting where

students are developmentally and appreciating students for who they are as individuals (L'Bate, 1994).

- A study by Eggert, Thompson, Herting, Jerald, Nicholas and Dicker (1994) with potential high-risk school dropouts showed that when social support networks in schools are enhanced, associated adolescent behaviour problems are reduced. Participants in their study showed significant decreases in drug control problems as compared to the control group, although they did not reverse their progression of drug use. By the end of the intervention semester, the experimental group increased their school grades across all classes while the control group's school grades remained the same. There was no improvement in school attendance for the experimental group, but attendance for the control group declined. Although the study was limited, it is important as a prerequisite to follow-up studies based on social support networks. The study points to the value of school-based prevention programs that work to reduce drug involvement and to improve school performance with identified high-risk groups.

Community/Neighbourhood Domain

Several aspects of communities and neighbourhoods have been shown to protect against ATODG behaviours.

Community-sponsored activities

- Youth involvement in non-school activities has been shown to enhance bonding with parents (Oetting et al., 1998).

Religious-based activities

- There is a strong relationship between religiosity and problematic behaviour when conventional community norms are embraced. Involvement in religious activities has been shown to be more important for reducing heavy drug use, and less so for marijuana and alcohol use.
- Dewit et al. (1995) reported that church attendance and a supportive family act as a protective factor from drug use.

Protective factors that affect a range of problem behaviours

- Catalano et al. (1992) have identified protective factors correlated with substance abuse, delinquency, teen pregnancy, school dropout and school violence. Common protective factors included the following:
  - in the individual domain, high intelligence, resilient temperament, competencies and skills
  - in the family, school, peer and community/neighbourhood domains, prosocial involvement and reinforcement for this involvement, bonding with family, school, community and peers and healthy beliefs and clear standards

Summary

Though the list is not exhaustive, key protective factors appear as follows:

Individual Domain

- strong personal social skills/esteem
- resilience

Family Domain

- parental monitoring/supervision
- emotional support
- presentation of clear, pro-social normative expectations
- positive bonding

Peer Domain

- affiliation of close friends who are not drug users
- positive bonding

School Domain

- participation in extra-curricular activities
- social support networks
- high social and academic expectations
- positive bonding

Community Domain

- community sponsored activities
- activities based on religion
- positive bonding

A summary of key risk and protective factors has been provided in chapters 2 and 3. In order to understand the influence these factors have on adolescent development and the use, misuse and abuse of ATODG, we need to understand adolescents within their developmental and social context (keeping in mind the domains of family, peer, school and community). There is a dynamic interplay between risk and protective factors across domains. For instance, while parenting skills and family management practices are important for the parent-child relationship, these skills and practices also influence peer friendship choices, level of community involvement, participation in non-school activities, academic achievement and academic outlooks. If adolescents do not perceive their parents as significant life mentors, the presence of another important adult figure that is caring and supportive can still have protective effects (Benard and Marshall, 2001). Often, all it takes is for one person to believe in an adolescent's ability to make the difference between success and failure. Positive bonding, whether it is between parent and child, child and teacher, or child and neighbour, prepares the adolescent for many obstacles caused by risk factors in various social domains.

CHAPTER FOUR DISCUSSION AND CONCLUSION

This chapter attempts to provide a summary of risk and protective factors that affect alcohol, tobacco, other drug and gambling behaviours among adolescents. In doing so, it may oversimplify some findings and overlook some of the dynamic interplay of events that occurs in real life.

According to the research, the odds that an adolescent will use ATODG increase as he or she gets older and we know that the odds are higher that males will use ATODG than will females. For alcohol, we know that most adolescents will have tried using before completing high school, that fewer will report monthly use and that a smaller number will show signs of abuse. Other drugs and gambling follow similar patterns of experimentation, regular use and abuse.

A wide range of risk and protective factors has been researched. We have adopted common practice in presenting findings related to individuals, families, schools, peers and neighbourhoods. In childhood years, in the individual domain, risk factors include brain-related traumas and signs of childhood mental health disorders. In later childhood, the age at which ATODG use/participation starts is a strong factor. In adolescence, orientations toward risk-taking, approaches to decision-making and attitudes emerge. Protective factors that offset these risks particularly emphasize social skills, bonding to non-delinquent peers and/or adults, and the development and maintenance of resilient characteristics.

The kind of family an adolescent grows up in matters. Conflict in families, poor family management and poor parenting skills present significant risks for ATODG behaviours. Families who are protective will monitor adolescents' activities and friends, do so with strong emotional support, and have clear and high expectations about appropriate behaviour. While the influence of families may wane over adolescence, families maintain a constant and important influence on the way adolescents develop.

Peer influence is an important factor in creating risks for, or developing protection against, undesirable ATODG behaviours. Peers whose attitudes and behaviours support ATODG, and peers who engage in deviant behaviour, contribute to risky environments. Non-using peers and peers who have strong values about avoiding ATODG use create a more protective environment.

Low levels of commitment to school and early signs of academic failure are significant risk factors. Students with strong school spirit, strong school-based social networks and students in schools with high expectations are in a more protective environment. The more positive the relationship between adolescents and the school environment, the more positive the results. This whole dimension involves teacher-student relationships, academic achievement, and involvement in extra-curricular activities.

Communities and neighbourhoods that are disorganized, are in transition, or have norms that are favourable to ATODG use, present risks to adolescents. Community-sponsored activities, pro-social neighbourhoods and participation in religious organizations foster protective environments.

The listing of risk and protective factors presented above doesn't do justice to several aspects of the research. First, genetics have an effect on the development of addictions but the mechanisms are unknown and the ways in which genetic factors interacts with non-genetic factors is also unknown. This research may emerge over the next decade.

Second, the nature and extent of the interactions between risk and or protective factors across social domains should be highlighted. For example, the influence of the family across social domains is lost to a degree in the welter of influences. Families, for the most part, transmit a biological inheritance. The most basic of attachments to other people are formed in early childhood as are basic values and temperament. Parents'

influence is felt even when adolescents begin to choose peers and develop social networks. Parents are a strong influence on children's academic performance and their expectations for future education. The way that families handle stresses and strains that can accompany adolescent ATODG abuse has a significant impact on outcomes in later life.

Third, problem behaviours tend to cluster together. Many of the risk and protective factors identified are also related to youth crime, teen pregnancy, early school leaving and violence. The implication is that programs aimed at reducing risk and increasing protective factors may well have positive results in a number of important areas.

Fourth, the relative importance of individual factors differs as children grow from early childhood into early, middle and late adolescence. Early in life, biological, temperamental and basic family attachments matter most. In late childhood, school values become important-the values that parents express about schoolwork, the values that schools impart to the child, and the extent to which parental and school values reinforce one another. In early adolescence, peer groups emerge in importance for both risk and protective factors and broader social influences emerge later. Parental expectations and parenting, peers and peer attitudes and high expectations from schools are quite consistent influences over the adolescent years.

It is clear that there are many factors involved in the alcohol, drugs, and tobacco use among adolescents in today's society. This conclusion can be tentatively stated regarding gambling behaviour as well. There are risk factors that suggest young people will likely progress towards problem behaviour in the areas of alcohol, drugs, tobacco, and gambling. As well there are factors that suggest, while exposure to risks rise, as teens grow older, they can be "protected" from problem behaviour.

The recurring themes and conclusions outlined in this chapter suggest implications for organizations that are concerned with the well being of youth. Two important themes emerge, in particular.

First, research emphasizes that connections between families, peers, school and community can work to reduce risk factors or enhance protective factors, thus preventing and mitigating problem behaviour related to gambling and the use of alcohol, tobacco and other drugs. Awareness of this relationship is vital to those who make decisions about resource allocation, policies and programs.

Second, research supports the value of identifying and informing key stakeholders such as government departments and agencies, municipal services, and health and social service agencies with a vested interest in adolescent well being. These stakeholders can be most effective if they recognize that adolescent behaviour must be understood within context (family, peer, school and community). It is also critical that all organizations involved with our youth have access to accurate and recent information regarding the use of alcohol, tobacco, other drugs and gambling by youth, trends in that use, and potential solutions to problems caused by use.

Recommendations for "best practice" programs in preventing the abuse of ATODG are beyond the scope of this paper. However, there is considerable research on "best practice" programs whose results have been demonstrated or judged promising for preventing alcohol and drug use, misuse or abuse. In order to effectively increase protection and reduce risks, the use of best practice programs are suggested.

In conclusion, public institutions and organizations who work with our youth and their families need current information about youth alcohol, drugs, tobacco use, and gambling behaviour. We have some insights into what may help prevent and even remedy existing problems and situations. However, it is critical not only to obtain accurate information

about what is happening with our youth but to keep track of ATODG behaviours and attitudes over time. Organizations need to understand the ways in which they can have the greatest possible impact on the lives of our adolescents in regard to their attitude and use of alcohol, drugs, and tobacco as well as their participation in gambling activity.

BIBLIOGRAPHY

Abbott, R. D., Hill, K. G., Catalano, R. F., & Hawkins, J. D. (2000). Predictors of early high school dropout: A test of five theories. *Journal of Educational Psychology, 92*(3), 568-592.

Adlaf, E. M., & Paglia, A. (2001). *Drug use among Ontario students, 1977-2001: findings from the OSDUS.* Toronto, ON: Centre for Addiction and Mental Health.

Anthony, J. C., & Petronis, K. R. (1995). Early onset drug use and risk of later drug problems. *Drug and Alcohol Dependency, 40*(1), 9-15.

Ary, D., Duncan, T., Biglan, A., Metzler, C., Noell, J., & Smolkowski, K. (1999). Development of adolescent problem behaviour. *Journal of the Abnormal Child, 27*(2), 141-150.

Barnes, J. E., & Welte, J.W. (1986). Patterns and predictors of alcohol use among 7th-12th grade students in New York State. *Journal of Studies on Alcohol, 47*, 53-62.

Benard, B., & Marshall, K. (2001). *Protective factors in individuals, families, and schools. National longitudinal study on adolescent health findings.* National Resilience Resource Center: University of Minnesota, College of Continuing Education.

Blumstein, A., Cohen, F., Roth, J. A., & Visher, C. A. (1986). *Criminal careers and "career criminals."* Washington D.C.: National Academy Press, 1.

Borden, L. M., Donnermeyer, J. F., & Scheer, S. D. (2001). The influence of extra-curricular activities and peer influence on substance use. *Adolescent and Family Health, 2*(1), 12-19.

Botvin, G. J., Schinke, S., & Orlandi, M.A. (1995). *Drug abuse prevention with multiethnic youth.* London: Sage.

Botvin, G. J., Schinke, S., Epstein, J. A., Diaz, T., & Botvin, E. (1995). Effectiveness of culturally focused and generic skills training approaches to alcohol and drug abuse prevention among minority adolescents: Two year follow-up results. *Psychology of Addictive Behaviours, 9*(3), 183-194.

Brennan, P., Mednick, S., & Kandel, E. (1991). Congenital determinants of violent and property offending. In D. Pepler, & K. H. Rubins (Eds.) *The development and treatment of aggression* (pp. 81-92). Hillsdale, NJ: Cambridge University Press.

Brook J. S., Brook, D. W., Gordon, A. S., Whiteman, M., & Cohen, P. (1990).The psychosocial etiology of adolescent drug use: A family interactional approach. *Journal of General Psychology, 116*(2), 119-267.

Brook J.S., Whiteman, M. Finch, S. & Cohen, P. (2000). Longitudinally foretelling drug use in the late twenties: adolescents personality and social environmental antecedents. *Journal of Genetic Psychology, 161*(1),37.

Brook, J. S., Cohen, P., Whiteman, M., & Gordon, A. S. (1992). Psychosocial risk factors, in the transition from moderate to heavy use or abuse of drugs. In M. Glantz & R. Pickens (Eds.), *Vulnerability to Drug Abuse* (pp. 359-388). Washington, DC: American Psychological Association.

Brook, J.S., Balka, E.B., Brook, D. W., Win, P.T. & Gursen, M.D. (1998). Drug use among African Americans: Ethnic identity as a protective factor. *Psychological Reports, 83*(3), 1427-1446.

Brook, J.S., Gordon, A.S., Whiteman, M. & Cohen, P. (1986). The role of older brothers in younger brothers' dug use viewed in the context of parent and peer influences. *Journal of Genetic Psychology, 151*, 460-467.

Bukstein, O.G. Glancy, L.J. & Kaminer, Y. (1992). Patterns of affective comorbidity in a clinical population of dually diagnosed adolescent substance abusers. In E.J. Costella, A. Erkanli, E. Federman & A. Angold , (1999), Development of psychiatric comorbidity with substance abuse in adolescents: effects of timing and sex. *Journal of Clinical Child Psychology, 28*(3), 298-311.

Catalano, R. F. & Hawkins, J. D. (1996). The social development model: A theory of antisocial behaviour. In J. D. Hawkins (Ed.) *Delinquency and Crime: Current Theories* (pp. 149-197). New York: Cambridge University Press.

Center for Substance Abuse Prevention (2001). *Principles of substance abuse prevention.* Retrieved February 24, 2003. http://www.secapt.org/science6.html

Center for Substance Abuse Prevention (2001). *Promising and proven substance abuse prevention programs.* Substance Abuse and Mental Health Services Administration.

Center for Substance Abuse Prevention. *Effective programs.* Retrieved October 16, 2002. http://about.preventiondss.org/html/documents/AnnualUpdate99/effective_programs.htm.

Center for Substance Abuse Prevention.(2001). *Science-based substance abuse prevention: A guide.* Rockville, MD: Substance Abuse and Mental Health Services Administration.

Chilcoat, H. D., & Anthony, J. C. (1996). Impact of parent monitoring on initiation of drug use through late childhood. *Journal of American Academy of Child and Adolescent Psychiatry, 35*(1), 91-100.

Chilcoat, H. D., Dishion, T. J., & Anthony, J. C. (1995). Parent monitoring and the incidence of drug sampling in urban elementary children. *American Journal of Epidemiology, 141*(1), 25-31.

Cloninger, C. R., Sigvardsson, W., & Bohman, M. (1988). Childhood personality predicts alcohol abuse in young adults. *Alcoholism: Clinical and Experimental Research, 12*, 494-505.

Coie, J. D., Watt, N. F., West, S. G., Hawkins, J. D. Asarnow, J. R., Markham, H. J., Ramey, S. L., Shure, M. B., & Long, B. (1993). The science of prevention: A conceptual framework and some directions for a national research program. *American Psychologist, 48*, 1013-1022.

Crum, R. M., Ensminger, M. E., Ro, M. J., & McCord, J. (1998). The association of educational achievement and school drop-out with risk of alcoholism: A twenty-five year prospective study of inner-city children. *Journal of Alcohol Studies, 59*, 318-326.

DeWit, D.J. & Silverman, G. (1995). The construction of risk and protective factor indices for adolescent alcohol and other drug use. *Journal of Drug Issues, 25*(4), 837.

Dinges, M.M. & Oetting, E.R. (1993). Similarity in drug use patterns between adolescents and their friends. *Adolescence, 28*(110), 246-266.

Downs, W. R. & Rose, S. R. (1991). The relationship of adolescent peer groups to the incidence of psychosocial problems. *Adolescence, 26*(102), 473-392.

Eggert, L., Thompson, E. A., Herting, E.A., Jerald, R. H., Nicholas, L.J., & Dicker, B. G. (1994). Preventing adolescent drug abuse and high school dropout through an intensive school-based social network development program. *America Journal of Health Promotion, 8*(3), 2002-2015.

Elliot, D. S., & Voss, H. L. (1974). *Delinquency and drop out*. Lexington: Heath and Company.

Fagen, J. (1988). *The social organization of drug use and drug dealing among urban gangs*. New York: John Jay College of Criminal Justice.

Goodlad, J. I. (1984). *A place called school: Prospects for the future*. New York: McGraw Hill.

Gottfredson, D. C. (1988). An evaluation on an organization-development approach to reducing school disorder. *Evaluation Review, 11*, 739-763.

Grant, B.F. & Dawson, D. A (1997). Age of onset of alcohol use and its association wiht DSM-IV alcohol abuse and dependence: Results form the National Longitudinal Epidemiologic Survey. *Journal of Substance Abuse, 9*, 103-110.

Guo, J., Collins, L. M., Hill, K. G., & Hawkins, J. D. (2000). Developmental pathways to alcohol abuse and dependence in young adulthood. *Journal of Studies on Alcohol, 61*, 799-808.

Guo, J., Hawkins, J. D., Hill, K. G., & Abbott, R. D. (2001). Childhood and adolescent predictors of alcohol abuse and dependence in young adulthood. *Journal of Studies on Alcohol, 62*, 754-762.

Gupta, R., & Derevensky, J. (1996). The relationship between gambling and video-playing behaviour in children and adolescents. *Journal of Gambling Studies, 12*(4), 375-394.

Gupta, R., & Derevensky, J. (1998a). Adolescent gambling behaviour: A prevalence study and examination of the correlates associated with excessive gambling. *Journal of Gambling Studies, 14*, 319-345.

Gupta, R., & Derevensky, J. (1998b). An empirical examination of Jacob's General Theory of Addictions: Do adolescent gamblers fit the theory? *Journal of Gambling Studies, 14*, 17-49.

Haapasalo, J., & Tremblay, R. E. (1994). Physically aggressive boys from ages 6 to 12: Family background, parenting behaviour and prediction of delinquency. *Journal of Consulting Clinical Psychology, 62*(5), 1044-1052.

Hansen, W. B., Graham, J. W., Sobel, J. L., Shelton, D. R., Flay, B. R., & Johnson, C. A. (1987). The consistency of peer and parent influences on tobacco, alcohol and marijuana use among young adolescents. *Journal of Behavioural Medicine, 10*, 559-579.

Harbach, R.L. & Jones, W.P., (1995). Family beliefs among adolescents at risk for substance abuse. *Drug Education, 25*(1), 1.

Hawe, D. (1995). *Attachment Theory for Social Work Practice*. MacMillan: London.

Hawke, J.M., Jainchill, N. & DeLeon, G. (2000). The prevalence of sexual abuse and its impact on the onset of drug use among adolescents in therapeutic community drug treatment. *Journal of Child & Adolescence Substane Abuse, 9*(3), 35-49.

Hawkins, J. D., Arthur, M. W., & Catalano, R. F. (1995). Preventing substance abuse. In M. Tonry (Ed.), *Building a safer society*. Chicago: University of Chicago Press.

Hawkins, J. D., Catalano, R. F., & Miller, J.Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early childhood: Implications for substance abuse prevention. *Psychological Bulletin, 112*(1), 64-105.

Hawkins, J. D., Kosterman, R., Maguin, E., Catalano, R. F., & Arthur, M. W. (1997). Substance use and misuse. In R. T. Ammerman & R. T. Hershen (Eds.), *Handbook of prevention and treatment with children and adolescents: Intervention in the real world context* (pp. 203-237). New York: John Wiley and Sons, Inc.

Hawkins, J. D., Lishner, D. M., & Catalano, R. F. (1985). Childhood predictors of and the prevention of adolescent substance abuse. In C. L. Jones & R. J. Battjes (Eds.), *Etiology of drug abuse: Implications for prevention*. (Research Monograph 576, 75-126. DHHS Publication No. ADM 85-1385.) Washington: NIDA, U. S. Government Printing Office.

Health Canada. (2001). *Preventing Substance Use Problems Among Young People: A Compendium of Best Practices*, Ottawa: Publications Health Canada.

Hirschi, T. (1969). *Cause of delinquency*. Berkeley, CA: University of California press.

Holland, A., & Andre, T. (1987). Participation in extra-curricular activities in secondary school: What is known: What needs to be known? *Review Education Resources, 57*(4), 437-466.

Institute of Medicine, Committee of Prevention of Mental Disorders. (1994). *Reducing risks for mental disorders: Frontiers for preventive interventions research*. Washinton DC, National Academy Press.

Jessor, R. & Jessor, S.L. (1977). Problem Behaviour and Psychosocial development. *A Longitudinal Study of Youth*. New York: Academic Press.

Jessor, R. & Jessor, S.L. (1978). Theory testing in lontitudinal reseasrch on marijuna use. In D. Kandel (Ed.), *Longitudinal Research on Drug Use*. Washington, DC. Hemisphere Publishing Corporation.

Jessor, R. (1976). Predicting time of onset of marijuana use: A developmental study of high school youth. *Journal of Consulting and Clinical Psychology, 44*, 125-134.

Jessor, R. (1982). Problem behaviour and developmental transition in adolescence. *Journal of School Health, 52*(5), 295-300.

Johnson, L. D, O'Malley, P. M., & Bachman, J. G. (1992) *Smoking, drinking, and illicit drug use among American secondary students, college students and young adults*. (NIH Publication, 1, pp. 93-348). Washington DC: U.S. Government Printing Office.

Johnson, L.D., O'Malley, P.M. & Bachman, J.G. (1991). Drug use among American high school seniors, college students and young adults,In D.G. Kilpatrick & R. Acierno (2000), Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology, 68*(1), 19.

Kandel, D. B. & Andrews, K. (1987). Processes of adolescence socialization by parents and peers. *International Journal of Addiction, 22*(4), 319-342.

Kandel, D. B. (1982). Epidemiological and psychosocial perspectives on adolescent drug use. *Journal of the American Academy of Clinical Psychiatry, 21*, 328-347.

Kandel, D. B., Simcha-Fagan, O., & Davies, M. (1986). Risk factors for delinquency and illicit drug use from adolescence to young adulthood. *Journal of Drug Issues, 16*, 67-90.

Kandel, D.B. & Yamaguchi, K. (1993). From beer to crack: developmental patterns of drug involvement. *American Journal of Public Health, 83*, 851-855.

Kandel, D.B., Kessler, R.C. & Margulies, R.Z. (1978). Antecedents of adolescent initiation into stages of drug use: A developmental analysis. *Journal of Youth and Adolescence, 7*, 13-40.

Kilpatrick, D.G. & Acierno, R. (2000). Risk factors for adolescent substance abuse and dependence : Data from a national sample. *Journal of Consulting and Clinical Psychology, 68*(1), 19.

Kim, S. (1979). *An Evaluation of Ombudsman Primary Prevention Program on Student Drug Abuse*. Charlotte: Charlotte, NC: Drug Education Center, Inc.

L'Abate, L. (1994). *A theory of personality development*. New York: Wiley Press.

Lesieur, H. R., & Klein, R. (1987). Pathological gambling among high school students. *Addictive Behaviours, 12*(2), 129-135.

Lewis, C. E., Robbins, L., & Rice, J. (1985). Association of alcoholism with antisocial personality in urban men. *Journal of Nervous and Mental Disease, 171*, 105-113.

Lewis, R. (1999). A write way: Fostering resiliency during transitions. *Journal of Humanistic Counselling, Education and Development, 37*, 200-211.

Liu, L.Y., & Maxwell, J.C. (2000). *Texas school survey of substance use among students: grades 7-12, 2000*. Texas Commission on Alcohol and Drug Abuse.

Maddahian, E. Newcomb, M.D., & Bentler, P. M. (1988). Risk factors for substance use: Ethnic differences among adolescents. *Journal of Substance Abuse, 1*, 11-33.

Marget, N., Gupta, R., & Derevensky, J. (1999, August). *The Psychosocial factors underlying adolescent problem gambling*. Poster presented at the annual meeting of the American Psychological Association, Boston, MA.

Martens, P.L. (1993). An ecological model of socialization in explaining offending. In R. Svensson (Ed.), Risk factors for different dimensions of adolescent drug use. *Journal of Child & Adolescent Substance Abuse, 9*(3), 67-90.

Martin, C.S. & Winters, K. C. (1998). Diagnosis and assessment of alcohol use disorders among adolescents. *Alcohol Clinical Experimental Research, 2*, 1300-1307.

McDermott, D. (1984). The relationship of parental drug use and parents' attitude concerning adolescent drug use to adolescent drug use. *Adolescence, 19*(73), 89-97.

Mensch, B. & Kandel, D. (1988). Dropping out of high school and drug involvement. *Sociology of Education, 61*, 95-113.

Merikangas, K. R., Rounsaville, B. J., & Prusoff, B. A. (1992). Familial factors in vulnerability to substance abuse. In M. Glantz & R. Pickens (Eds.) *Vulnerability to abuse*. Washington, DC: American Psychological Association.

Michaud, L. J., Rivara, F., Jaffe, K. M., Fay, G., & Dailey, J. L. (1993). Traumatic brain injury as a risk factor for behavioural disorders in children. *Archives of Physiological and Medical Rehabilitation, 74*, 368-375.

Mulhall, P. F., Stone, D., & Stone, B. (1996). Home alone: Is it a risk factor for middle school youth and drug use? *Journal of Drug Education, 26*(1), 39-48.

Needle, R. H., Su. S. S., & Doherty, (1990). Divorce, remarriage, and adolescent substance use: A prospective longitudinal study. *Journal of Marriage and the Family, 52*, 157-169.

Newcomb, M. D., & Felix-Ortiz, M. (1992). Multiple protective and risk factors for drug use and abuse: Cross-sectional and prospective findings. *Journal of Personal Social Psychology, 63*, 280-296.

Newcomb, M.D. (1987). Consequences of teenage drug use: The transition from adolescence to young manhood. *Drugs and Society, 1*, 25-60.

Nower, L. Gupta, R., & Derevensky, J. (2000). *Youth gamblers and substance abusers: A comparison of stress-coping styles and risk-taking behaviour of two adolescent populations.* Paper presented at the 11th International Conference on Gambling and Risk-Taking, Las Vegas.

Nurco, D.N. & Lerner, M. (1996). Vulnerability to narcotic addiction: family structure and functioning. *Journal of Drug Issue, 26*(4), 1007.

Nylander, I. (1979). A 20 year perspective follow-up study of 2164 cases at the Child Guidance Clinics in Stockholm. *Acta Paediatricia Scandinavia, 276,* 8-45.

Oetting, E. R. & Donnermeyer, J. F. (1998). Primary socialization theory: Basic principles. *Substance Use and Misuse, 33*(40), 734-761.

Oetting E.R. & Beauvais, F.(1987). Peer cluster theory, socialization characteristics and adolescent drug use: A path analysis. *Journal of Counselling Psychology, 34*(2). 205-213.

Oxford, M. L., Harachi, T. W., Catalano, R. F., & Abbott, R. D. (2000). Preadolescent predictors of substance initiation: A test of both the direct and mediated effect of family social control factors on deviant peer associations and substance initiation. *American Journal of Drug and Alcohol Abuse, 27*(4), 599-616.

Penning, M. & Barnes, G. E. (1982). Adolescent marijuana use: A review. *International Journal of the Addictions, 17,* 749-791.

Pentz, M. A. (1985). Social competence and self-efficacy as determinants of substance use in adolescents. In T. A. Wills & S. Shiffman (Eds.), *Coping and Substance Use.* New York: Academic Press.

Pollard, J.A. & Hawkins, J. D. (1999). Risk and protection: Are both necessary to understand diverse behavioural outcomes in adolescence? *Social Work Research, 23*(30), 145-160.

Rankin, J.H. & Kern, R. (1994). Parental attachments and delinquency. *Criminology, 32*(4), 495.

Resnick, M., Bearman, P., Blum. R., Bauman, K., Harris, J., Jones, J., Tabor, J., Beuhring, T., Sieving, R., Shew, M., Ireland, M., Bearinger, L., & Udry , J. (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association, 278,* 823-832.

Richardson, J. L., Radziszewska B., Dent, C. W., & Flay, B. R. (1993). Relationship between after-school care of adolescents and substance use, risk taking, depressed mood and academic achievement. *Pediatrics, 92*(1) 146-148.

Robins, L. N. & Przybeck, T. R. (1985). Age of onset of drug use as a factor in drug and other disorders. In C. L. Jones & R.J. Battjes (Eds.), *Etiology of drug abuse: Implications for prevention* (National Institute on Drug Abuse Research Monograph No. 56, DHHS Publication No. Adm 85-1335, pp.178-192). Washington, DC: U.S. Government Printing Office.

Robins, L. N. & Ratcliff, K. S. (1979). Continuation of antisocial behaviour into adulthood. *International Journal of Mental Health, 7,* 96-116.

Robins, L. N. (1984). The natural history of adolescent drug use. *American Journal of Public Health, 74,* 656-657.

Robins, L. N. (1992). *Synthesis and analysis of longitudinal research on substance abuse.* Unpublished report.

Scheier, L. M,. & Botvin, G. J. (1998). Relations of social skills, personal competence, and adolescent alcohol use: A developmental exploratory study. *Journal of Early Adolescence, 18*(1), 77-114.

Schnirer, L.A.J. (1996). *Adolescent sexuality in rural Alberta.* Published master's thesis, University of Alberta, Edmonton, Canada.

Shedler, J., & Block, J. (1990). Adolescent drug use and psychological health: A longitudinal inquiry. *American Psychology, 45,* 612-630.

Sieving, R., Perry, C., & Williams, C. (1998). Do friendships change behaviours or do behaviours change friendships? Directions of influence in adolescent alcohol use. *Journal of Adolescent Health, 22,* 127.

Simcha-Fagen, O., & Schwartz, J.E. (1986). Neighborhood and delinquency: An assessment of contextual effects. *Criminology, 24,* 667-704.

South West Regional Center (SWRC). (1994). *What are protective factors?* Retreived March 23, 2003. http://tel.occe.ou.edu/swrc/protfac.html

Steinberg, L., Fletcher, A. & Darling, N. (1994). Parental monitoring and peer influences on adolescent substance use. *Pediatrics, 93*(60), 1060-1064.

Substance Abuse and Mental Health Services Administration (2001). *Comparison matrix of science-based prevention programs.* Rockville, MD: Department of Health and Human Services, USA.

Substance Abuse and Mental Health Services Administration (2002). *The National Cross-Site Evaluation of High-Risk Youth Programs.* (DHHS Publication No. SMA003375) Rockville, MD: Department of Health and Human Services, USA.

Svensson, R. (2000), Risk factors for different dimensions of adolescent drug use. *Journal of Child & Adolescent Substance Abuse, 9*(3), 67-90.

Tarter, R. (1988). Are there inherited behavioural traits which predispose to substance abuse? *Journal of Consulting and Clinical Psychology, 56,* 186-189.

Toledano, I. M. (2002). *Risk factors for drug addiction among youth in the Vancouver downtown east side: A drug users' perspective.* Published Master's thesis. The University of British Columbia, Vancover, Canada.

Vakalahi, H. F. (2001). Adolescent Substance Use and Family-Based Risk and Protective Factors: A Literature Review. *Journal of Drug Education, 31,* 29-46.

Vicar, J.R., Snyder, A.R. & Kimberly, L.H. (2000). The effects of family variables and personal competencies on the initiation of alcohol use by rural seventh grade students. *Adolescent & Family Health, 1*(1), 21-28.

Vitaro, F. Ferland, F., Jacques, C. & Ladouceur, R. (1998). Gambling, substance use and impulsivity during adolescence. *Psychology of Addictive Behaviours, 12*(3), 185-194.

Webster, R., Hunter, M., & Keats, J. (1994). Peer and parental influences on adolescents' substance abuse: A path analysis. *The International Journal of the Addictions,* 647-657.

Weinberg, N.Z. & Glantz, M.D. (1999). Child psychopathology risk factors for drug abuse. *Journal of Clinical Child Psychology, 28*(3), 290.

Werner, E. E. (1989). High-risk children in young adulthood: A longitudinal study from birth to 32 years. *American Journal of Orthopsychiatry, 59,* 72-81.

Winters, K.C. & Anderson,N. (2000). Gambling involvement and drug use among adolescents. *Journal of Gambling Studies, 16*(2-3), 175-198.

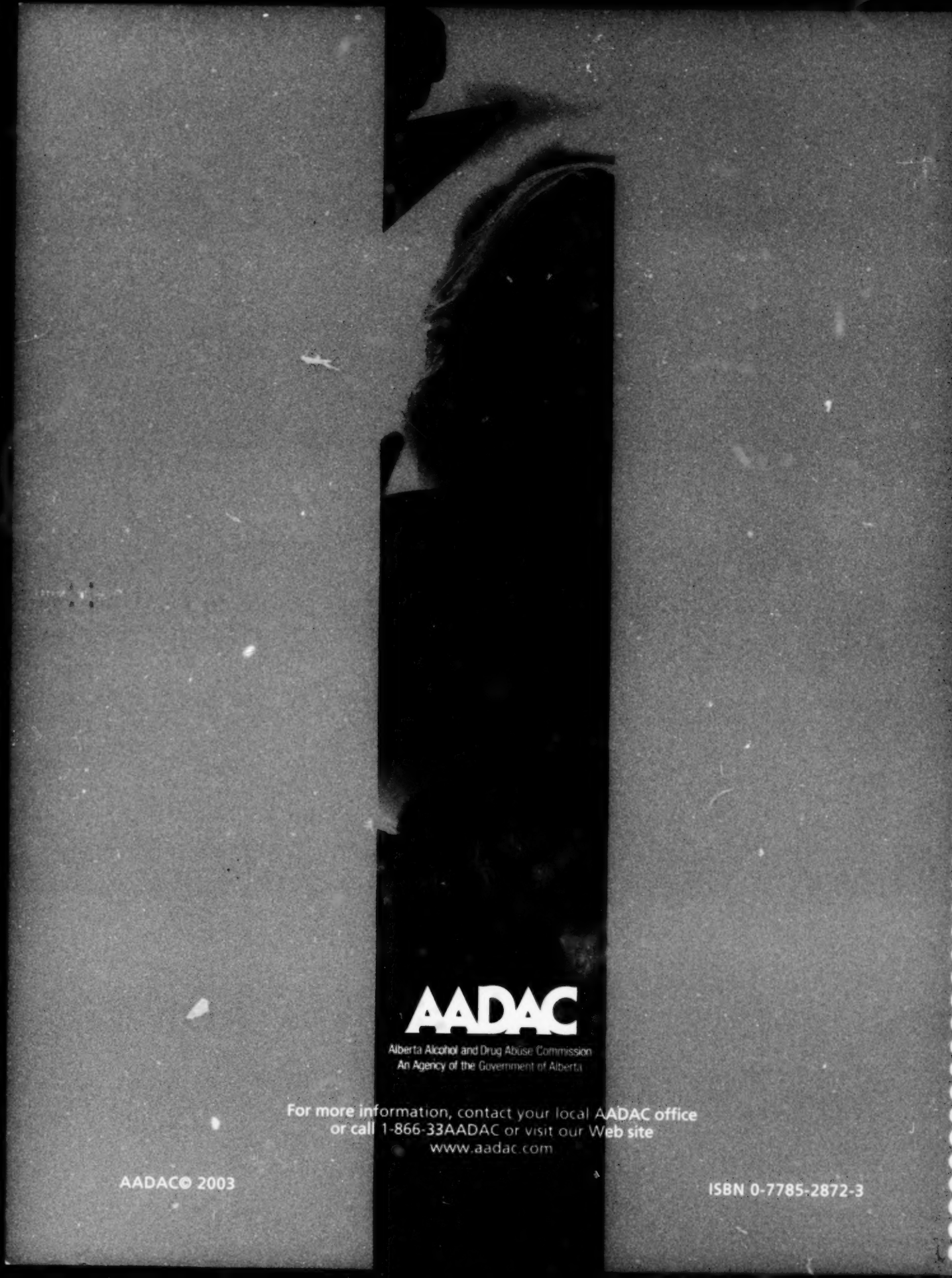
Wittenberg, S. K., (1988). *Youth at risk: Who are they, why are they leaving and what can we do?* (ERIC Document Reproduction Service No. ED301 317)

Wolin, S., & Wolin, S. (1993). *The resilient self: How survivors of troubled families rise above adversity.* New York: Villard Books.

Wolin, S., & Wolin, S. (1995). Resilience among youth growing up in substance abusing families. *Pediatric Clinics of North America, 42*(2), 415-429.

Yamaguchi, K. & Kandel, D. B. (1984). Patterns of drug use from adolescence to young adulthood: II. Sequences of progression. *American Journal of Public Health, 74,* 688-762.

Zucker, R.A., Kincaid, S.B., Fitzgerald, H.E. & Bingham, C.R. (1995). Alcohol schema acquisition in pre-schoolers: Differences between children of alcoholics and children of nonalcoholics. *Alcohol: Clinical Experimental Research, 19*(4): 1011-1017.



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An Agency of the Government of Alberta

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ISBN 0-7785-2872-3